

CLAIMS

1. Method for producing a hair-fixing product in the form of a foil whereby
 - first a rollable composition is prepared by dissolving or dispersing a polymer in a liquid carrier medium and
 - then by means of a rolling device the composition is rolled into foil shape and at the same time or subsequently the liquid carrier medium is evaporated.
2. Method as defined in claim 1, characterized in that the polymer is a foil-forming and/or hair-fixing polymer.
3. Method as defined in one of the preceding claims, characterized in that the liquid carrier medium is selected from among water, alcohols, ethers, ketones and hydrocarbons and mixtures of said substances, provided that the substance or mixture of substances is liquid at room temperature (25 °C).
4. Method as defined in one of the preceding claims, characterized in that the rollable composition contains the polymer in an amount from 10 to 80 wt.% and the liquid carrier medium in an amount from 20 to 90 wt.%.
5. Method as defined in one of the preceding claims, characterized in that after evaporation of the liquid carrier medium the amount of polymer in the foil is from 50 to 97 wt.%.
6. Method as defined in one of the preceding claims, characterized in that the composition contains at least one water-soluble polymer.
7. Method as defined in one of the preceding claims, characterized in that the composition contains pullulan.

8. Method as defined in claim 7, characterized in that the pullulan has an average molecular weight from 10,000 to 5,000,000.

9. Method as defined in claim 7 or 8, characterized in that the composition contains
5 at least one additional hair-fixing polymer.

10. Method as defined in claim 9, characterized in that the weight ratio of pullulan to the additional hair-fixing polymer is from 1:10 to 10:1.

10 11. Method as defined in claim 10, characterized in that the additional hair-fixing polymer is selected

- from among polymers derived from at least one monomer selected from among vinylactams, vinyl esters, vinyl alcohols, acrylamides, methacrylamides, alkylacrylamides, dialkylacrylamides, alkylmethacrylamides, dialkylmethacrylamides, dialkylaminoalkylmethacrylamides, dialkylaminoalkylacrylamides, alkyl acrylates, alkyl methacrylates, propylene glycol and ethylene glycol;
- from among polymers derived from at least one monomer selected from among acrylic acid, methacrylic acid, crotonic acid, maleic acid, maleic anhydride and monoesters of maleic acid;
- from among polymers derived from at least one monomer selected from among trialkylmethacryloxyalkylammonium, trialkylacryloxyalkylammonium, dialkyldiallylammonium, alkylvinylimidazolium, alkylvinylpyridinium and alkylvinylpyrrolidone;
- from among polymers derived from at least one kind of monomer containing acid groups and from at least one other kind of monomer containing basic amino groups;
- from among polymers derived from at least one kind of monomer containing both quaternary amino groups and acid groups or from polymers derived from at least one first kind of monomer containing quaternary amino groups and at least one second kind of monomer containing acid groups..

12. Method as defined in claim 11, characterized in that the additional polymer is selected from among polyvinylpyrrolidone, polyvinylcaprolactam, polyacrylamides, vinylpyrrolidone/vinyl acetate copolymer, crosslinked and uncrosslinked vinyl acetate/-crotonic acid copolymers, terpolymers of vinylpyrrolidone, vinyl acetate and vinyl alkanoate, terpoly-mers of vinyl acetate, crotonate and vinyl alkanoate, partly esterified copolymers of vinyl methyl ether and maleic anhydride, copolymers of acrylic acid and/or methacrylic acid and alkyl acrylates, alkyl methacrylates, N-alkylacrylamides, N-alkylmethacrylamides, and/or polystyrene sulfonates, copolymers of alkylacrylamide, alkylaminoalkyl methacrylate and two or more monomers selected from among acrylic acid, methacrylic acid or the C₁ to C₄ alkyl esters thereof, with at least one of the monomers containing an acid group; copolymers of acrylic acid, methacrylate and methacrylamido-propyltrimethylammonium chloride, copolymers of acrylamidopropyltrimethylammonium chloride and acrylates, copolymers of acrylamide, acrylamidopropyltrimethylammonium chloride, 2-amidopropylacrylamido sulfonate and dimethylaminopropylamine, copolymers of methacryloylethylbetaine and two or more monomers selected from among acrylic acid or the simple esters thereof, methylvinylimidazolium chloride/vinylpyrrolidone copolymers, polyvinylpyrrolidone/dialkylaminoalkyl methacrylate copolymers, quaternized vinylpyrrolidone/dialkylaminoalkyl methacrylate copolymers, homopolymers of dimethyldiallylammonium chloride, copolymers of dimethyldiallylammonium chloride and at least one other monomer, quaternized hydroxyethylcellulose or quaternized guar derivatives, terpolymers of vinylpyrrolidone, vinylcaprolactam and a basic acrylamide monomer or methacrylamide monomer and vinylpyrrolidone/methacrylamidoalkyltrimethylammonium chloride copolymers.

25 13. Method as defined in one of the preceding claims, characterized in that the foil additionally contains at least one substance selected from among emulsifiers, softeners, hair luster-imparting agents, preservatives, fragrances, pigments, product tinting agents and water-insoluble particulate solids.

14. Method as defined in one of the preceding claims, characterized in that the thickness of the foil after rolling is less than 0.5 mm.

15. Method as defined in one of the preceding claims, characterized in that gas bubbles are introduced into the foil.

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16. Hair-styling foil made by a method as defined in one of claims 1 to 15.

17. Hair-styling foil containing at least 85 wt.% of at least one hair-fixing polymer and more than 3 wt.% of at least one surfactant.

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18. Hair-styling foil as defined in claim 17, characterized in that the hair-fixing polymer is selected from among polysaccharide-based polymers and nonionic synthetic polymers.

15 19. Hair-styling foil as defined in claim 18, characterized in that it contains as the hair-fixing polymer a combination of (a) pullulan and (b) at least one polymer selected from among polyvinylpyrrolidone and polyvinylpyrrolidone/vinyl acetate copolymer, the weight ratio of (a) to (b) being less than 1:1.

20 20. Hair-styling foil as defined in one of claims 17 to 19, characterized in that the surfactant used is a mixture of at least one cationic and at least one nonionic surfactant, the weight ratio of the cationic to the nonionic surfactant being 1:10 to 10:1.

25 21. Hair-styling foil containing at least 50 wt.% of hair-fixing polymers and containing pullulan in combination with at least one additional hair-fixing polymer, the weight ratio of pullulan to the additional hair-fixing polymer being less than 1:1.

30 22. Hair-styling foil as defined in claim 21, characterized in that it contains pullulan in an amount from 15 to 45 wt.% and the additional hair-fixing polymer in an amount from 30 to 70 wt.%, provided that the weight ratio of pullulan to the additional hair-fixing poly-

mer is less than 1:1.

23. Hair-styling foil as defined in one of claims 17 to 22, characterized in that the foil thickness is less than 0.5 mm.

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24. Hair-styling foil as defined in one of claims 17 to 23, characterized in that it contains enclosed air bubbles.

25. Hair-styling foil as defined in one of claims 17 to 24, characterized in that additionally it contains at least one polyol.

10 26. Hair-styling foil as defined in claim 25, characterized in that it contains the polyols in an amount from 1 to 50 wt.% and that said polyols are selected from among glycols, glycerols, sugar alcohols and polyethylene glycols that are liquid at 25 °C.

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27. Hair-styling foil containing at least 50 wt.% of hair-fixing polymers, characterized in that the foil is treated with a powdered release agent adhering to the foil.